

INFORMATION REPORT INFORMATION REPORT

CENTRAL INTELLIGENCE AGENCY

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COUNTRY USSR

REPORT

SUBJECT

1. Technical Specifications of the Soviet 022 K Turboprop Engine
2. Production of the NK-12-Type Turboprop Engine at Bezymyanka
3. Shortage of Heat Resistant Materials in the USSR
4. Soviet Development of Metal Additive for Fuel

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10 November 1957

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SOURCE EVALUATIONS ARE DEFINITIVE. APPRAISAL OF CONTENT IS TENTATIVE.

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1. Copies of two reports discussing very briefly the technical specifications and production of the 022 K turboprop engine, and two sketches of the engine itself
2. It is stated that there is a shortage of heat resistant materials in the USSR and should the GDR be supplied with such materials it would be prejudicial to the USSR. There is no further discussion of this matter.
3. Apparently the USSR is experiencing difficulties in developing fuels with metal additives. Aluminium and borine (sic: boron?) have been utilized unsuccessfully and an indication was made that the acquisition of results of Western developments in this field would be very desirable to the USSR. No information is presented indicating the nature of any tests involving metal additives.

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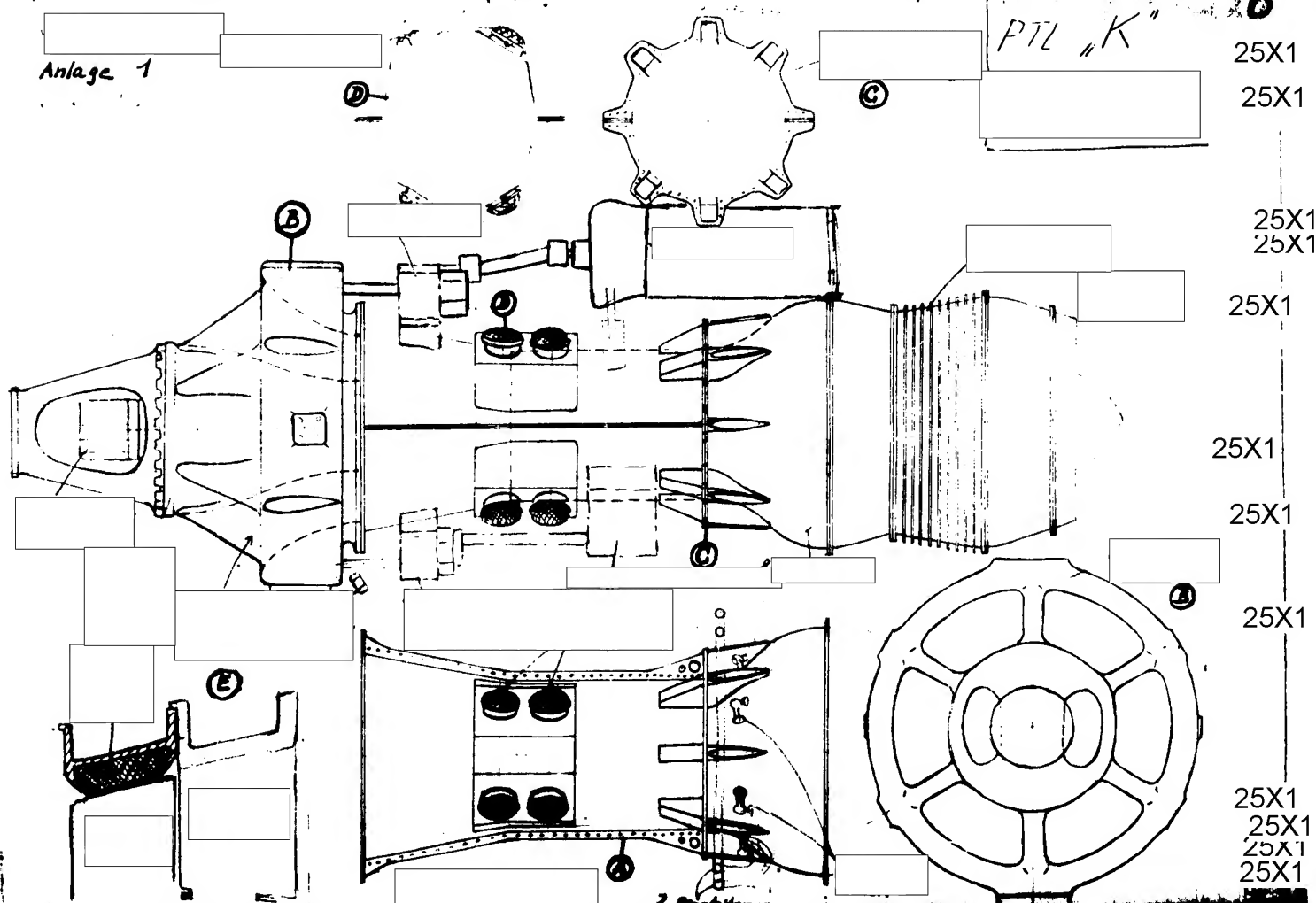
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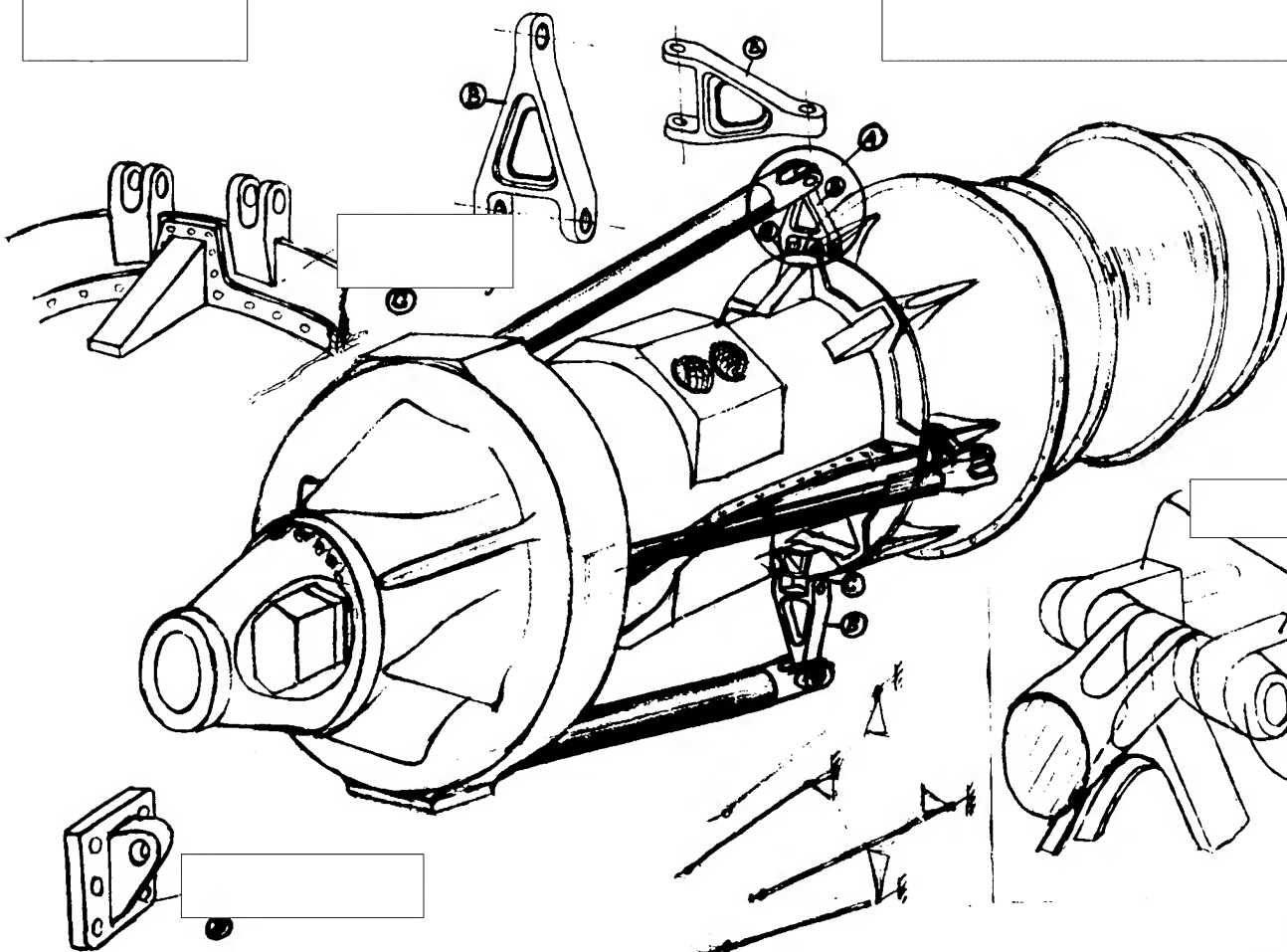
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SECRET**COUNTRY** USSR/East Germany**SUBJECT** NK-12 Type Turboprop of Soviet Make
and Information on the Soviet Aircraft
Industry.**DATE OF REPORT** 25 June 1957

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LAST REPORT ON SUBJECT
(If applicable)

ANNEXES

(M.M.?)

1. On the occasion of the 1957 Leipzig Spring Fair, General Lukin and a Soviet delegation stayed in the GDR for a period of 14 days. During this period, he visited the Verwaltung der Luftfahrt-Industrie (Administration of the Aircraft Industry) (VLI) in Pirna. He was obviously impressed by the improvements in the field of development of power units. He spoke highly of Dr. Scholnest and Giering, ^{Russian} ^{German} while he disapproved of the specialists in the field of aircraft development especially Director Freitag. Fritz Freitag.

2.

- a. The mass-production of NK-12 type turboprops had been started at Works No 24 in Botaynyanka. This turboprop has a period of operation of 250 hours between the individual complete overhauls. One ^{A.D. Ovshelev} ^{phonetic spelling} (fnu) was chief designer of Works No 24 and he was praised by General Lukin. The laborforce of this plant was estimated at 20,000 to 25,000 men. In 1950, 25 to 30 engine test stands were available there.
- b. As in the U.S. attempts are being made in the USSR not to use the supersonic compressor since it is only efficient under certain circumstances.
- c. There is a shortage in highly heat-resistant materials in the USSR. It was mentioned that, if the GDR would be supplied with such materials, it would be a sacrifice for the USSR.
- d. Lukin was very interested in fuels with metal additives. He stated that unsuccessful experiments in this field were made in the USSR two years ago. At first, fruitless tests had been made with aluminum additive. Experiments with borine combinations, which had been somewhat unsuccessfully, ^{being} ^{made}. Lukin asked for the procurement of as much information on fuels with metal additives as possible from the West.
- e. The IL-18 will be equipped with four NK-4 type turboprops. This engine had been tested at the plant for 250 hours. Lukin mentioned that this turboprop will be tested under state control in 1957. It can be assumed, however, that this statement is too optimistic.

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COUNTRY USSR

SUBJECT Plant No. 2, Upravlensheski Gorodok

DATE OF REPORT 9 July 1957

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LAST REPORT ON SUBJECT
(If applicable)

ANNEXES

1. The German group of experts in Upravlensheski started designing of the O22 K turboprop. Only in late 1952, work on the O22 K turboprop was intensified especially by order of Soviet G. I. Kuznetsov. In early 1953, a model of the O22 K turboprop had been constructed.

2. The following are technical data for the O22 K turboprop:

Maximum power for climb	12,000 e.h.p.
Permanent thrust	about 500 kp
Number of revolutions at maximum power for climb	7,800 rev/min
Pressure at measuring point P ₄	about 4 pressure above atmospheric
Air-gas ratio	1 : 4
Propellers	5.8 meters in diameter (two four-bladed contrarotating propellers)
Number of revolutions of propellers	700 to 800 rev/min

The propellers, which were connected by means of a differential, were adjusted hydraulically. For the landing procedure they could be adjusted at brake position. The compressor had 14 and the turbine 5 stages. It was learned in Upravlensheski that the O22 K turboprop was designed for the plant of Designer Tupolev (fnu) (phonetic spelling) in Moscow.

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[redacted] comment. NK-12 is the Soviet designation for the G22 K turboprop with 2,500 e.h.p. which had been developed by the German scientists who had been deported to the USSR. The NK-4 type turboprop has about 4,000 e.h.p. It appears probable that Il-18 is the designation for the aircraft for 70 passengers and is equipped with four turboprops. It was shown at the Tushino parade.

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